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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,407	01/05/2005	Hiroyuki Naitou	264178US0PCT	9968
22850	7590	03/28/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			HAILEY, PATRICIA L	
			ART UNIT	PAPER NUMBER

1755

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/519,407

Applicant(s)

NAITOU ET AL.

Examiner

Patricia L. Hailey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on January 15, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date January 5, 2005.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

Applicants' Preliminary Amendment, filed on January 5, 2005, has been made of record and entered. In this amendment, claims 1 and 4-6 have been amended to correct grammatical errors, and to ensure proper claim dependency. Additionally new claims 7-15 have been added.

Claims 1-15 are now pending in this application.

### *Priority*

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on July 5, 2002. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

Applicants have stated that the certified copy was submitted to the International Bureau in PCT Application No. PCT/JP03/05821, and that receipt of the certified copy by the International Bureau in a timely manner has been acknowledged.

### *Claim Objections*

2. *Claim 1 is objected to because of the following informalities:*

In line 19 of claim 1, the word "garium" should be "gallium".

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. *Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*

Claims 1-15 are indefinite because claim 1 does not recite any specific steps defining the claimed method of producing a catalyst. The only definite process limitation is the phrase "by subjecting methacrolein to vapor phase catalytic oxidation with molecular oxygen", which is relevant to the phrase "for use in the production of methacrylic acid".

It appears that the claimed method of producing a catalyst comprises "mixing 100 parts by mass....(liquid A), ...5 to 300 parts by mass...(liquid B), ... and a solution or a slurry (liquid C)...", with the proviso that "liquid B" is mixed with either (1) "liquid A", (2) "liquid C", or (3) "a mixture of the liquid A and the liquid C over a period of 0.1 to 15 minutes". For purposes of examination, the Examiner will interpret the previous sentence as the claimed method for producing the catalyst.

#### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. *Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasuga et al. (U. S. Patent No. 6,458,740).*

Kasuga et al. teach a method for preparing a catalyst via preparing an aqueous solution or dispersion such that the ammonium ion content does not exceed 10 mols per 12 mols of the molybdenum atom content. See col. 2, lines 4-21 of Kasuga et al.

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The method involves dissolving or uniformly dispersing raw materials containing the catalyst-constituting elements, such as phosphorus, molybdenum, and vanadium. The catalyst is defined by the general formula



(wherein P, Mo and V are phosphorus, molybdenum and vanadium, respectively; X represents at least one metal element capable of constituting a heteropolyacid salt, which is selected from alkali metals (potassium, rubidium, cesium and the like), alkaline earth metals, copper, silver, zirconium, niobium, zinc, magnesium, selenium, tellurium, arsenic, antimony, germanium, iron, nickel and silicon; O is oxygen, a, b, c, d and x signify atomic ratios of P, Mo, V, X and O, respectively, where b is 12, a is 0.1-3, c is 0-6, d is 0.05-5, and x is a numerical value determined by valency of each element).

See col. 2, lines 42-62 of Kasuga et al. Note that the general formula of Kasuga et al. overlaps that of the instant claims in terms of metal components and their respective atomic ranges.

Example 1 of Kasuga et al. disclose an exemplary embodiment wherein a solution of molybdenum and vanadium components is admixed with phosphoric acid (considered to read upon "liquid A"), which is then admixed with cesium and nitrate components (considered to read upon "liquid C"), which is then admixed with an aqueous mixture (considered to read upon "liquid B").

The catalyst of Kasuga et al. is employable in the vapor phase oxidation or oxidehydrogenation reaction of methacrolein, isobutyl aldehyde and/or isobutyric acid.

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See col. 1, lines 57-61 of Kasuga et al., as well as col. 4, lines 24-41, the latter of which discloses exemplary process conditions (considered to read upon **claims 10-15**).

Kasuga et al. do not specifically disclose the specific amounts of the components, as recited in claim 1, nor does the reference specifically disclose the claimed requirements of each of the slurries, as recited in claims 3, 4, 8, and 9. However, because Kasuga et al. at col. 3, lines 7-22 disclose that the "raw materials containing the catalyst-constituting elements are subject to no particular limitation", and because Kasuga et al. require that the ammonium ion content should not exceed 10 mols per 12 mols of molybdenum ion content (col. 3, lines 44-46), which is within the ammonium ion contents for Applicants' "liquid A" and "liquid C", it would have been obvious to one skilled in the art at the time the invention was made to select catalyst components meeting the ammonium ion contents of Kasuga et al., and thereby obtain Applicants' claimed process. It has been held to be within the general skill of a worker in the art to select a material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 U.S.P.Q 416.

9. *Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 2000-296336, Applicants' submitted art (translation provided by the Examiner).*

The Japanese Patent discloses a catalyst useful for the production of methacrylic acid by vapor phase catalytic oxidation of methacrolein, said catalyst produced by mixing a solution (A) containing at least molybdenum, phosphorus, and vanadium

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with a solution (B) containing an ammonia compound, and mixing that mixture (A + B) with a solution (C) which contains Z (represented by potassium rubidium, cesium and thallium). The amount of ammonium radicals in solution (A) is less than or equal to 1.5 mols per 12 mols of molybdenum atoms, and the amount of ammonium radicals in (A + B) is 6-17 mols per 12 mols of molybdenum. See claim 1 of the Japanese Patent, which also discloses a molecular formula for the catalyst comparable to that recited in the instant claims.

The Japanese Patent does not specifically disclose the claimed amounts of the solutions to be admixed, as recited in the instant claims. Because the Japanese Patent teaches a catalyst formulaically similar to that recited in the instant claims, and teach a method comparable to that instantly claimed, in terms of the solutions and the components respectively contained therein, it would have been obvious to one skilled in the art at the time the invention was made to determine through routine experimentation the optimal amounts of these components, and thereby obtain Applicants' claimed invention.

### *Conclusion*

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Additionally, a translation of Japanese Patent No. 07-185354, cited on Applicants' Information Disclosure Statement, accompany this Office Action. Pending the



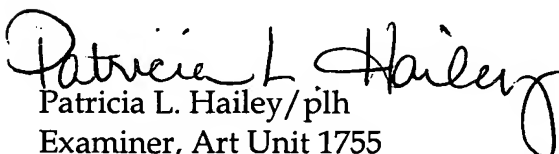
availability of a translation of Japanese Patent No. 04-182450 to the Examiner, a copy thereof will be forwarded to Applicants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Patricia L. Hailey/plh  
Examiner, Art Unit 1755  
March 20, 2006

  
J.A. KOBENKO  
SUPERVISORY PATENT EXAMINER